

# SITE NEED STATEMENT

## General Reference Information

**Need Title:** **Classified TRU Material Sanitization**  
**Need Code:** NV19-0101-10  
**Need Summary:** A facility is needed that assembles the appropriate technologies, within a secure location, to properly sanitize (declassify) classified TRU materials stored at the Nevada Test Site (NTS) and at other DOE sites. Once the TRU material at the NTS is sanitized, it could be declared a waste, certified, and then shipped to the Waste Isolation Pilot Plant (WIPP) for disposal. Disposition of this material would eliminate the need for further surveillance, maintenance, and control expenditures. The current WIPP shipping schedule includes a window of opportunity for the transport of the NTS Classified TRU to WIPP (FY 2009) should sanitization, repackaging, and subsequent waste certification take place in time.  
**Origination Date:** January 1, 2001  
**Need Type:** Technology Need  
**Operations Office:** DOE/NV  
**Geographic Site Name:** Nevada Test Site  
**Project:** NV350/TRU/Mixed TRU  
**National Priority:** Medium  
**Operations Office Priority:** 10 of 12

## Problem Description Information

**Operations Office Program Description:** The primary mission of the DOE/NV Waste Management Program is to manage radioactive and hazardous waste generated by DOE and defense industry activities that is stored or disposed at the Nevada Test Site. The Waste Management Program must ensure that the acceptance, treatment, storage, and/or disposal of waste is carried out in accordance with federal, state, and local regulations.

**Need/Problem Description:** The NTS Classified TRU Material cannot be shipped to WIPP for final disposition unless the material is first sanitized (declassified). WIPP is not authorized for the management of classified material or waste. The capability to sanitize classified materials does not currently exist at the NTS nor is it known to exist at any other site within the DOE Complex. Without a sanitizing technology/facility, classified TRU material will continue to be stored in secure areas for an indefinite period of time. At the NTS, the DOE/NV Waste Management Division has under its responsibility 248 containers of classified TRU material. In addition, there are 47 containers of classified material under the responsibility of the Defense Programs. The magnitude of the problem is much greater at sites such as Rocky Flats, Los Alamos National Laboratory, and Hanford, which could also benefit from the deployment of this technology/facility. In addition, there is a potential for complex-wide crosscutting use of a sanitization facility by organizations other than Environmental Management.

**Functional Performance Requirements:** This new technology is a functional assemblage of capabilities that are required to properly and adequately sanitize classified material so that it may be declassified and subsequently be declared a waste.

Any Classified TRU Material Sanitization alternative must be capable of accomplishing the following:

- Destroy shapes sufficient for declassification.
- Capable of sanitizing a variety of materials including metal, plastics and graphite.
- Handle sizes ranging up to 18 inches in any dimension.
- Provide proper and sufficient security control.
- Keep secondary solid or liquid waste generation to a minimum.
- Control and limit personnel exposure to harmful substances.
- Contain sufficient storage for processing volumes.
- Have effective containment systems for all phases of operations.

	<ul style="list-style-type: none"> <li>• Have effective monitoring systems for all phases of operations.</li> <li>• Have effective emergency response capabilities.</li> </ul>
<b>Definition of Solution:</b>	In the DOE/NV WM Baseline, the planning assumptions include sending the NTS Classified Material to an offsite facility for sanitization, declassification, repackaging, certification, and shipment to WIPP.
<b>Targeted Focus Area:</b>	Decontamination and Decommissioning
<b>Potential Benefits:</b>	Disposition of this material would eliminate the need for further surveillance, maintenance, and control expenditures and elimination of a waste stream.
<b>Potential Cost Savings:</b>	There are no identifiable cost savings from the removal of this material from the NTS. Because surveillance, maintenance, and security control of the Classified Area will occur regardless of the presence of the Classified TRU Material, the primary benefit would be a reduction of the mortgage of radioactive material on the NTS. The indirect cost currently realized by the TRU Project would be funded by another project.
<b>Potential Cost Savings Narrative:</b>	<p>Because this technology is already counted on as part of the DOE/NV WM Baseline, there are no cost savings to identify in comparison to the baseline. Should the baseline plans for the deployment of this technology not be realized, there would be a cost incurred for the continued surveillance, maintenance, and security control. Deployment of the technology would, therefore, be a cost avoidance.</p> <p>The cost avoidance potential is dependant on the implementation time-frame for a sanitization facility. The earlier such a facility becomes available the higher the cost avoidance. Cost avoidance would be realized by eliminating the need for annual surveillance, maintenance, and security control. The current cost for surveillance, maintenance, and security control of the NTS Classified TRU Material is approximately \$370,000 per year.</p>
<b>Technical Basis:</b>	The TRU materials under the responsibility of Waste Management at the NTS are classified primarily because of their shape. As previously stated, there are no available sanitization capabilities, although, the functional technology may already exist to adequately sanitize this classified material. To date, there has been no assemblage of technological capabilities within a secure facility for this purpose. Should there be a change from the current DOE/NV WM Baseline plans, and a future decision is made to construct a sanitization technology/facility on the NTS, there are coinciding plans to maintain the capability to certify TRU waste for subsequent disposition at WIPP.
<b>Cultural/Stakeholder Basis:</b>	Local stakeholder opinion is primarily based on environmental and health safety issues. Removal of hazardous material from the site is viewed as a reduction in the overall mortgage that exists on the NTS. Disposition of this transuranic material at another site will help address the waste disposal equity issue from a Nevada stakeholder perspective.
<b>Environment, Safety, and Health Basis:</b>	Even though the potential is remote, should there be a release or failure of the existing containment system, the material contains constituents that would be considered potentially detrimental to human health and the environment.
<b>Regulatory Drivers:</b>	Executive Order 12958 - National Security Information DOE Order 470.1 - Safeguards and Security Program DOE Order 471.2A - Information Security Program DOE Manual 471.2-1A - Manual for Classified Matter Protection and Control DOE Order 435.1 - Radioactive Waste Management
<b>Milestones:</b>	Not applicable
<b>Material Streams:</b>	Legacy MTRU Boxes (1056). Technical risk score 1. Not on critical closure path
<b>TSD System:</b>	TBD Technology (1840)
<b>Major Contaminants:</b>	Pu 239
<b>Contaminated Media:</b>	Metal containers
<b>Volume/Size of Contaminated Media:</b>	248 containers of classified TRU material; 54 cubic meters volume
<b>Earliest Date Required:</b>	2001
<b>Latest Date Required:</b>	2006

## **Baseline Technology Information**

### **Baseline Technology Process:**

The current DOE/NV Waste Management (WM) Division Baseline includes the use of this enabling technology/facility to sanitize the classified TRU material for subsequent declassification, certification, and disposition at WIPP. The WM Baseline schedule assumes such a facility will be available in sufficient time to meet the designated shipping corridor for this future waste.

Should this technology/facility not become available, the material will continue to be stored, with a continuation of existing surveillance, maintenance, and security control of the storage area and containment systems.

### **Life-Cycle Cost Using Baseline: Uncertainty on Baseline Life-Cycle Cost:**

Approximately \$11 million in unescalated dollars (approximately \$15 million escalated).

In the DOE/NV WM Baseline, the planning assumptions include sending the NTS Classified Material to an offsite facility for sanitization, declassification, repackaging, certification, and shipment to WIPP. The total cost estimate for this planned phase of the disposition of the classified material is approximately \$11 million in unescalated dollars (approximately \$15 million escalated). This includes the cost for transportation to the offsite facility, a charge for the sanitization process including repackaging, and a charge for certification prior to shipment to WIPP. The life-cycle cost estimate is a rough order-of-magnitude estimate.

The indirect costs for Safeguard and Security related to the NTS Classified TRU Material is approximately \$200,000 per year (in constant dollars). In addition, \$370,000 for surveillance and maintenance of the Classified Area, which are paid for by the Low-Level Waste (LLW) Project also cover this material. This cost is interrelated and redundant between the LLW and TRU Projects. There is no way to differentiate, or split this cost between the two projects as the same cost would be incurred regardless of the exclusion of one or the other. The only way this indirect cost would not be realized in the TRU Projects is if all Classified TRU stored on the NTS were eliminated. This surveillance and maintenance annual cost will continue (due to disposed classified LLW); however, there would be a reduced inventory of material (in surface storage) that would require secure control should the enabling sanitization technology becomes available.

### **Completion Date Using Baseline:**

FY2009

## **Points of Contact (POC)**

### **Contractor End User POCs:**

George Conover, Bechtel Nevada, Principal Engineer - Office: 702-295-1163; Fax: 702-295-3069; E-mail: conovegh@nv.doe.gov

### **DOE End User POCs:**

Angela Colarusso, WMD - Office: 702-295-1218; Fax: 702-295- 1153; E-mail: colarusso@nv.doe.gov

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